Dheeraj Komandur

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Education

University of Southern California Aug 2021 - May 2023

Master of Science, Computer Science

MIT World Peace University, India Jul 2017 - July 2021

B. Tech Computer Science and Engineering (GPA - **9.77** / 10)

Skills

Languages - Python, C++, SQL, Java, Javascript **Web Technologies** - HTML, CSS, PHP, AngularJS, Node, Bootstrap

ML Libraries - Keras, TensorFlow, Pytorch, Open CV, Numpy, Pandas, Scikit-learn, Matplotlib, Anaconda

Work Experience

Research Computer Vision Intern, Leap Aeronautics Jun 2020 - Sep 2020

- Built an autonomous landing angle calculation system using onboard 2D monocular camera for airborne UAVs.
- Trained object detection models - YOLO, SSD & RCNN with an accuracy of 87% to detect helipads.
- Wrote OpenCV script to calculate descent angle along the X-Y-Z axis with an error rate of <5% for in-flight drones.

Lead Student Member, Institute's Innovation Council Jun 2019 - Aug 2021

- Led a council of 30 students, under Indian Ministry of HRD aimed towards fostering innovation in university.
- Head Organiser of HackMITWPU hackathon which connected over 2,000 students and 20+ industrial partners.

Team Lead and Web App development Intern, TERRE Policy Center Jul 2019 - Dec 2019

- Developed a website using HTML, JS and PHP that collects and tracks 90% of direct and indirect GHG emissions.
- Built an android application to visualize data of 12 sources and 3 scopes of GHG emission on university campus.

Machine Learning Intern, KPIT Technologies Jun 2019 - Jul 2019

- Upgraded from a static system to a dynamic AI-assisted platform for testing and analysis of infotainment clusters.
- Trained deep learning algorithm to auto-extract 12 regions of interest which reduced time of operation by 77%
- Wrote OpenCV scripts for skewness correction and for auto adjustment of camera focus based on blur detection.

Honors & Awards

- Represented India and **Won** the **International ASEAN Hackathon** for developing a system to detect, track and predict Illegal Marine Activities of "Dark" ships in international waters. Awarded prize money of $2,700.
- **Won** the national **Smart India hackathon 2020** for building 'Groundwater Data Analytics Dashboard' for Govt. of India, which provides ML based query analysis, visualization and predicts future water trends. Prize - $1,500
- **Won Smart India hackathon 2019**- Developed a Real-Time Supply Chain Management software for SKF Ltd.

Research Publications

Descent Angle Calculation for UAVs using a Monocular Camera (IJCA, FCS) (Link)

Introduced a method to calculate Yaw-Pitch-Roll landing angles for drones with a single onboard monocular camera.

Deep Learning approach to Detect Potholes in Real-Time using Smartphones (IEEE) (Link)

Proposed a novel architecture to detect potholes using 2 fold validation of camera and accelerometer data.

Secure image transmission using style transfer (Springer) (Link)

Introduced a custom Cycle GAN style transfer based encryption algorithm for duplex secure image transmission.

A Comprehensive Study on Novel Video Frame Interpolation Methods (IJCA, FCS) (Link)

Projects

- Deployed **AQI- MITWPU App** with IITM, Govt. of India; the app has 1,000+ downloads & a 4.6 rating. (Link)
- Built **SlowMoNet**, a deep learning based algorithm for slow-motion video generation using frame interpolation.
- **Indoor Navigation for university -** Developed zero-cost 3D pathfinding algorithm based on QR code tracking.
- **Dental credentialing system -** Built an automatic authentication & onboarding system for Principal Global Ltd.